REDUCING DELAY IN ADMINISTRATION OF URGENT INTRAVITREAL TREATMENT FOR POST-OPERATIVE ENDOPHTHALMITIS

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Introduction

Endophthalmitis is a significant post-operative ocular complication with very poor visual prognosis. Diagnosis includes sampling or 'tap' of intraocular fluid for microbiological analysis. Antibiotics are then administered directly into the eye by intravitreal injection. In our Trust, intravitreal vancomycin 1mg/0.1ml and ceftazidime 2.25mg/0.1ml are recommended for treatment of endophthalmitis. These antibiotics are usually prepared by the aseptic pharmacist within working hours. Out-of-hours, these antibiotics are supplied as two separate boxes of pre-packed undiluted antibiotics with step-to-step guidance on preparation to achieve treatment dose.

Benchmark audit showed that the average time gap from initial presentation and assessment by doctor or nurse practitioner to 'tap and inject' was 4 hours and 42 minutes (range 1 hour 39 minutes to 6 hours and 23 minutes). This figure is below the European Society of Cataract and Refractive Surgeons (ESCRS) recommendation of treatment delivery within one hour of presentation.[1] Difficulty locating equipment required for 'tap and inject' and time required to order or to prepare intravitreal antibiotics were reported by staff as reasons for delay in treatment.

We conducted a quality improvement project with the aim to reduce the time gap from initial presentation of post-operative endophthalmitis to administration of treatment to ensure best patient outcomes.

Method

Medisoft (Leeds, UK) based audit to assess the time gap between initial presentation and 'tap an inject' of all post-operative endophthalmitis cases over 2 study periods following implementation of various interventions as illustrated on the following PDSA flowcharts (Figure 1 and 2).

Results

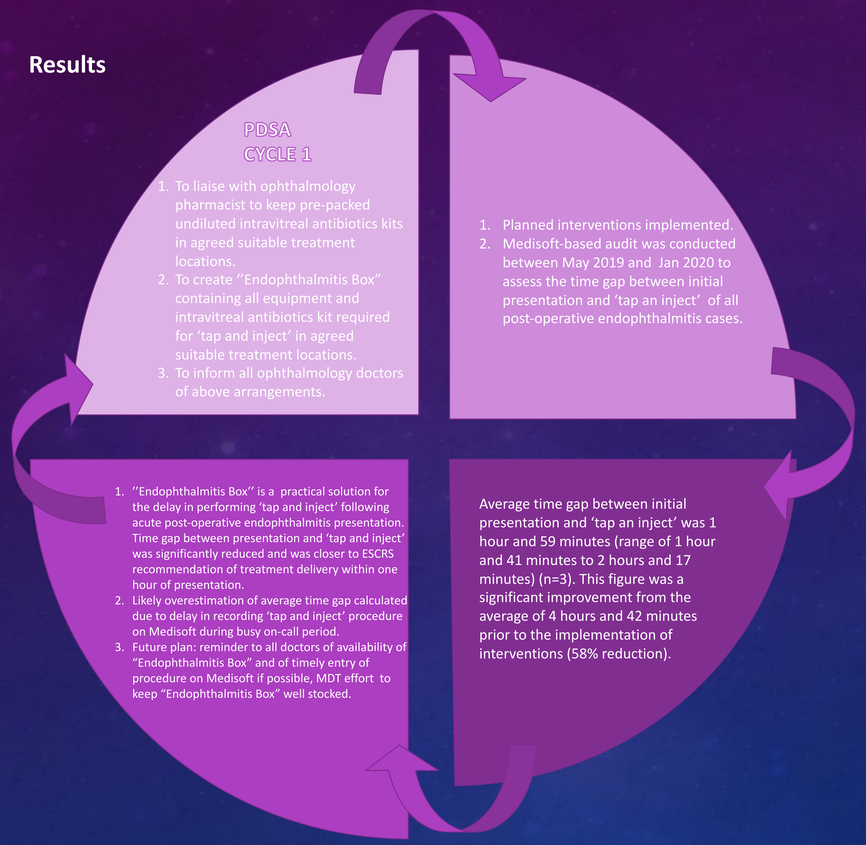


Figure 1. PDSA cycle 1 which lead to 58% reduction of time gap between initial presentation of post-operative endophthalmitis and 'tap and inject' compared to baseline.



Figure 2. PDSA cycle 2 which lead to 25% reduction of time gap between initial presentation of post-operative endophthalmitis and 'tap and inject' compared to baseline.

Discussion/Conclusion

"Endophthalmitis Box" is a simple and practical solution to the delay in performing 'tap an inject' for treatment of post-operative endophthalmitis. The availability of this emergency treatment box within our department reduces the time gap between initial presentation and treatment of post-operative endophthalmitis by 25%-58%. This brings our practice closer to ESCRS recommendation of treatment delivery within one hour of presentation. It is important to keep the on-call workforce well-informed of the departmental endophthalmitis treatment policy especially on the availability of intravitreal antibiotics out-of-hours and well-trained in preparation of intravitreal antibiotics. The implementation and sustainability of "Endophthalmitis Box" require multidisciplinary team efforts involving medical, pharmacy, outpatient and ward teams. Reduced ophthalmology clinical exposure, redeployment to medical specialities, staff shortages during COVID-19 pandemic may contribute to prolonged gap between presentation and treatment during the pandemic.

Reference:

1. European Society of Cataract and Refractive Surgeons. ESCRS guidelines for prevention and treatment of endophthalmitis following cataract surgergy: data, dilemmas and conclusions. 2013. Available at: http://www.escrs.org/endophthalmitis/guidelines/ENGLISH_2018_updated.pdf (accessed April 2022).

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